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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/601,085

06/20/2003

Mukesh K. Jain

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GORE ENTERPRISE HOLDINGS, INC.
551 PAPER MILL ROAD
P. O. BOX 9206
NEWARK, DE 19714-9206

EXAMINER

MATZEK, MATTHEW D

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

11/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/601,085	Applicant(s) JAIN ET AL.	
	Examiner Matthew D. Matzek	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-14, 16-22, 24-34, 36-51, 53-55 and 57-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-14, 16-22, 24-34, 36-51, 53-55 and 57-68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/20/2007 has been entered.

Response to Amendment

2. The amendment dated 8/20/2007 has been fully considered and entered into the Record. Claims 1, 21, 41, 53 and 66 have been amended. The amended claims contain no new matter. Claims 1-8, 10-14, 16-22, 24-34, 36-51, 53-55 and 57-68 are currently active. The previous rejection made in view of Maples and Kershner et al. have been withdrawn because Maples teaches away from the use of polyamides as used in Kershner et al., so one of ordinary skill in the art at the time the invention was made would not have combined the two aforementioned references.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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3. Claims 1, 5, 10-14, 16, 17, 20, 21, 24-26, 32-34, 36 and 66-68 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hayes (US 6,368,710 B1).

a. Hayes discloses a sulfonated aliphatic-aromatic copolyester comprising the reaction product of one or more aromatic dicarboxylic acids, one or more aliphatic dicarboxylic acids, one or more sulfonated compounds and isosorbide resulting in a sulfonated aliphatic-aromatic copolyester (abstract). The copolyester is produced through a melt polymerization method where the aromatic dicarboxylic acid component, the aliphatic dicarboxylic acid component, the isosorbide, the sulfonated component and the optional glycol and polyfunctional branching agent are combined in the presence of a catalyst at a temperature high enough such that the monomers combine to form esters and diesters, then oligomers, and finally polymers (col. 5, lines 32-47). Preferably, the sulfonated component is a salt of sulfonated-substituted acid (col. 3, lines 55-64) and the aromatic dicarboxylic acid component is a diphenyl sulfone (col. 3, lines 1-10). The aromatic nucleus options set forth in Hayes anticipate the claimed polymeric structure (col. 3, lines 55-60). The composition may be combined with polyphenylene sulfide (PPS) (col. 10, lines 45-55) to form laminates or multilayer films. The applied invention may be biaxially stretched to provide it with superior tensile strength, flexibility, toughness and shrinkability and increase water vapor resistance (col. 11, lines 13-27) and may be applied onto substrates to take the form of a film coating (col. 8, line 65-col. 9, line 5). The fact that stretching improves the water vapor resistance of the invention demonstrates that the applied article is capable of transmitting moisture vapor. The film

of Hayes may be used to coat textile fabrics to provide the fabrics with protection against corrosion, the action of moisture or chemicals, impermeability to gases and liquids or increasing the mechanical strength (col. 10, lines 8-26).

b. Although Hayes does not explicitly teach the claimed features of having a sulfonic acid equivalent weight of about 400-800 or claimed chemical permeations over a 20-hour period, it is reasonable to presume that said properties are inherent to Hayes. Support for said presumption is found in the use of like materials (i.e. sulfonated aromatic polymers). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties of having a sulfonic acid equivalent weight of about 400-800 or claimed chemical permeations over a 20-hour period would obviously have been present one the Hayes product is provided.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-8, 10-14, 16, 17, 20-22, 24-34, 36-51, 53-55 and 57-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maples (US 6,395,383) in view of Hayes (US 6,368,710 B1).

a. Maples discloses a selectively permeable protective covering capable of transmitting high quantities of water vapor while also being capable of significantly restricting the passage of dangerous chemicals (Abstract). This invention is directed to use as a protective garment or associated accessories (Abstract). In an embodiment of this invention the chemical protective covering comprises two water vapor permeable

polytetrafluoroethylene (PTFE) substrates and a polyamine polymer with amine-acid moieties specifically involving H_2SO_4 (col. 4, lines 57-65). The substrates may be woven, nonwoven or knit fabrics (col. 7, lines 38-40) and may also be porous (col. 6, lines 13-23). The third substrate may also be made of polyethylene, polysulfone, polypropylene, polyamides, and the like (col. 7, lines 37-45). The acidic species of the polyamine polymer amine-acid moieties are preferably multi-protic and may include sulfuric and sulfurous acid (col. 9, lines 5-20). The acidic species may also be covalently bound within the polyamine polymer (col. 9, lines 12-16). The polyamine polymer will be made to form a selectively permeable sheet or layer, which in some embodiments, may be part of a composite sheet with at least one water vapor permeable substrate (col. 10, lines 12-15). A laminate construction of the applied invention is depicted in Figure 19. The applied article has a water vapor transmission rate greater than 2000 $\text{g}/(\text{m}^2 \cdot \text{day})$ (col. 4, lines 40-44). Maples is silent as to the use of aromatic sulfonated polymers in the creation of a protective article.

b. Hayes discloses a sulfonated copolyester comprising the reaction product of one or more aromatic dicarboxylic acids, one or more aliphatic dicarboxylic acids, one or more sulfonated compounds and isosorbide resulting in a sulfonated aliphatic-aromatic copolyester (abstract). The copolyester is produced through a melt polymerization method where the aromatic dicarboxylic acid component, the aliphatic dicarboxylic acid component, the isosorbide, the sulfonated component and the optional glycol and polyfunctional branching agent are combined in the presence of a catalyst at a temperature high enough such that the monomers combine to form esters and diesters,

then oligomers, and finally polymers (col. 5, lines 32-47). Preferably, the sulfonated component is a salt of sulfonated-substituted acid (col. 3, lines 55-64) and the aromatic dicarboxylic acid component is a diphenyl sulfone (col. 3, lines 1-10). The aromatic nucleus options set forth in Hayes anticipate the claimed polymeric structure (col. 3, lines 55-60). The composition may be combined with polyphenylene sulfide (PPS) (col. 10, lines 45-55) to form laminates or multilayer films. The applied invention may be biaxially stretched to provide it with superior tensile strength, flexibility, toughness and shrinkability and increase water vapor resistance (col. 11, lines 13-27) and may be applied onto substrates to take the form of a film coating (col. 8, line 65-col. 9, line 5). The fact that stretching improves the water vapor resistance of the invention demonstrates that the applied article is capable of transmitting moisture vapor. The film of Hayes may be used to coat textile fabrics to provide the fabrics with protection against corrosion, the action of moisture or chemicals, impermeability to gases and liquids or increasing the mechanical strength (col. 10, lines 8-26).

c. Since Maples and Hayes are from the same field of endeavor, (i.e. sulfonated protective articles), the purpose disclosed by Hayes would have been recognized in the pertinent art of Maples.

d. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to coat Maples with the film of Hayes with the motivation of providing the article of Maples with protection against corrosion, the action of moisture or chemicals, impermeability to gases and liquids or increasing the mechanical strength. It also would have been obvious to have made the combined invention waterproof, as it is

well known in the field of protective garments that it is desirable for said garments to be waterproof.

e. Although neither Hayes nor Maples explicitly teach the claimed features of having a sulfonic acid equivalent weight of about 400-800 or claimed chemical permeations over a 20-hour period, it is reasonable to presume that said properties are inherent to the combined invention. Support for said presumption is found in the use of like materials (i.e. sulfonated aromatic polymers). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties of having a sulfonic acid equivalent weight of about 400-800 or claimed chemical permeations over a 20-hour period would obviously have been present once the combined product is provided.

f. Claims 2-4, 30, 31, 54 and 55 are rejected as the invention of the applied patent may be used as blankets, tents, sleeping bags, sacks, footwear, gloves, garments and the like ('383 col. 6, lines 29-32).

g. Claims 5 and 27 are rejected as the '383 invention allows for the incorporation of additional layers to the protective covering article including various textiles, felts, films, membranes, scrims, leathers and the like (col. 12, lines 4-10).

h. Claims 6 and 29 are rejected as fabric laminate may comprise multiple layers of polyamide, cellulosic, polyester and polyurethane ('383 col. 7, lines 37-62). Figure 19 of the '383 patent demonstrates the use of multiple layers of fabric (col. 12, lines 24-28).

i. Claims 21 and 36 are rejected as the polyamine polymer will be made to form a selectively permeable sheet or layer, which in some embodiments, may be part of a

composite sheet with at least one water vapor permeable substrate ('383 col. 10, lines 12-15). The '383 patent teaches the polyamine polymer composite sheet with open pore expanded PTFE substrates ('383 claim 10). Claim 22 is rejected.

j. Claims 28, 40 and 64 are rejected as laminate arrangements may consist of arrangements of polyimide layers combined with one or more additional fabric layers ('383 col. 12, lines 44-48).

k. Claims 37-39 and 60-63 are rejected as the polyimide polymer may be made to imbibe into a substrate or substrates such that the polymer fills the voids within a substrate either wholly or partially ('383 col. 11, lines 55-63). The applied patent teaches the polyimide polymer composite sheet with open pore expanded PTFE substrates ('383 claim 10).

5. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayes (US 6,368,710 B1) as applied to claim 1 above, and further in view of Kershner et al. (US 4,824,916). Hayes fails to teach or suggest the crosslinking of the sulfonated aromatic polymer.

a. Kershner et al. teach the use of water-insoluble, cross-linked sulfonated aromatic polyamides to create a coating (Title and Abstract). The applied invention may be used to create membranes for gas separation and solvent dehydration (col. 2, lines 65-67). The sulfonated aromatic polyamides of Kershner et al. have pendant groups comprising sulfonic acid groups in anionic form (col. 6, lines 36-43). The ionically cross-linked polymers have special utility as a water resistant coating (col. 9, lines 26-31) and may be laminated to a porous substrate (col. 10, lines 50-55).

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b. Since Hayes and Kershner et al. are from the same field of endeavor, (i.e. selectively permeable articles), the purpose disclosed by Kershner et al. would have been recognized in the pertinent art of Hayes.

c. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have ionically-crosslinked the polymer of Hayes as set forth in Kershner et al. to impart the polymeric layer with increased strength.

Response to Arguments

6. Applicant's arguments with respect to claims 1-8, 10-14, 16-22, 24-34, 36-51, 53-55 and 57-68 have been considered but are moot in view of the new ground(s) of rejection.

Double Patenting

7. Claims 1-8, 10-14, 16-22, 24-34, 36-51, 53-55 and 57-68 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16, 18-47 and 49-51 of copending Application No. 10/818,214. Although the conflicting claims are not identical, they are not patentably distinct from each other because both articles are directed to protective composites made of aromatic sulfonated polymers.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew D. Matzek whose telephone number is 571.272.2423. The examiner can normally be reached on M-F, 9-5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571.272.1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/
Examiner, Art Unit 1794

/Norca L. Torres-Velazquez/
Primary Examiner, Art Unit 1794